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## **Chill out – considering a fridge for your caravan or camp vehicle doesn't have to be challenging.**

From the hum of a compressor fridge to the fumes of a gas-powered – the pitfalls and benefits of portable refrigeration depend on what a camper requires on their travels. In this episode of the Snowys Camping Show, Ben and Lauren keep their cool as they discuss portable refrigeration with our caravan expert, Kevin from the Snowys warehouse.

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### **Mentioned in this Episode:**

#### **Category Pages:**

[Chest Fridges](#)

[Upright Fridges](#)

[Drawer Fridges](#)

[Solar and Power](#)

#### **Brand Pages:**

[Dometic](#)

[myCOOLMAN](#)

[Engel](#)

[Evakool](#)

[Bushman Fridges](#)

**Products:**

Bushman DC50–X 50L Upright Fridge

Bushman DC85–X 85L Upright Fridge

Dometic CFX3 25 Portable Fridge/Freezer 25L

Engel MT–V45F 40L Fridge Freezer

Engel MT–V60F 60L Fridge Freezer

Engel SB30F Drawer Fridge 30L

myCOOLMAN CCP36 Portable Fridge/Freezer 36L

myCOOLMAN CCP73 Portable Fridge/Freezer 73L

## Refrigeration for Vans

While Lauren travels in a campervan, Ben owns a chest fridge for his 4WD adventuring.

Generally, caravans, campervans, motorhomes, and that alike will include a fridge of their own, with the exception of some more basic camper trailers.

When considering a secondhand caravan, there are ways to determine if or when an upgrade may be necessary. Firstly, when buying from a private supplier, ask them to first turn on the fridge to establish that it's in working condition before following through with the purchase – be it a compressor or absorption-style fridge. When purchasing from a dealer, this should already be a step in their process before handing it on. Regardless, fridges have lifespans – so if it seems to be deteriorating, factor a replacement cost into the price you're expected to pay.

## Caravan Fridges

Typically a smaller version of what is found in a home kitchen, a caravan fridge is either freestanding or mounted as an element of the caravan's interior cabinetry. For those who love a drink – just picture a mini bar fridge.

When we refer to caravan fridges, we distinguish them by their cooling units. A home-style fridge has a compressor, which pumps the refrigeration around its cabinet to create a cold environment. On the other hand, caravan fridges without a compressor operate via absorption-style technology.

The mechanism involves heating an ammonia solution to create a vapour, which travels through the tubes at the back of the fridge before converting back into a liquid in the condenser. When this occurs, heat is absorbed, removed from the cabinet, and dispersed through the vents into the atmosphere, cooling the fridge's interior. The condensed liquid travels back down into a small reservoir, before flowing back into the boiler and heated again to continue the process. The heating component occurs via a small gas flame. With no additional moving parts, this is the operation of a traditional caravan fridge. When a customer looks for a gas fridge, this is the style of the fridge to which they are referring. Ironically, a lot of heat is required to cool the fridge, which is why positioning your caravan in direct sunlight has the fridge working less efficiently. As the vents are already working to expel heat, doing so into an even warmer environment can further prolong this process.

## Powering Caravan Fridges

A caravan fridge is typically a three-way model, offering powering options across gas, 12-volt and 240-volt. While older models lacked a 12-volt option, those more recent now incorporate it as a third mode of power. If operating with gas, it's important to ensure a chest fridge is standing level for optimum efficiency. Within a three-way fridge, a 12-volt electric element sits on one side of the boiler, while the 240-volt sits on the other. The boiler itself sits directly on top of the gas flame. It's for this reason that gas tends to be a more efficient powering method, whereas 240-volt power will only be as effective if it can produce the same intensity of heat. The elements on either side transmit heat from themselves to the boiler side-on, thus less effective. That said, gas emits fumes that require exterminating.

Operating via 12-volt power is done so for maintenance purposes. Starting warm with a 12-volt operation will mean a fridge takes longer to cool, as too little heat is generated. While 12-volt draws a large current, it meanwhile needs to maintain the element at a lower wattage in comparison to the 240-volt element. As a result, it draws a lot of battery and more power than what a vehicle can provide. Given the absence of a thermostat on a 12-volt model, a fridge relies on either 240-volt or gas to reach a cold temperature when camping overnight. Switching to 12-volt powering maintains this temperature in transit.

In light of the above, the 12-volt element of a three-way fridge is an entirely different structure to an efficient compressor 12-volt fridge.

## Advantages of Caravan-Specific Fridges

So, what are the advantages of choosing a caravan-specific fridge over a standard 12-volt or 240-volt powered chest fridge?

A chest fridge is normally used for camping and 4WD-ing, with an opening above as a lid. On the other hand, a better option for caravans is an upright fridge correctly ventilated to sufficiently expel heat from the cabinet. If heat is forced to maneuver around the cabinet, the cooling process is slowed.

A three-way chest fridge should also be positioned away from a vehicle to avoid dispersing gas fumes into its interior overnight.

## Drawer Slides

In some caravans, the fridge is not built into the kitchen but through a hutch on the side. Essentially, it behaves as a chest fridge that extends on a drawer slide from the side of the caravan, adequately ventilated.

Most fridges on a drawer slide are a standard 12-volt chest fridge. If using an upright, three-way fridge, a potential setback is the required connection to a gas bottle with a long, flexible gas tube. These can wear away with the persistent rough and tumble of travelling, where a deteriorated gas line can cause a leak. For this reason, a compressor fridge running off 12-volt power with extension cords is a simpler alternative.

With the danger of bi-products from burning gas, three-way fridges are required to be appropriately vented by directing the fumes outside of the van via a flue or 'chimney' outlet. Earlier gas models didn't have these, which meant the dispersion of gas was slower. While



the heat itself produced from gas-powered fridges isn't harmful, gas fumes are what can cause fatal consequences.

## Advantages and Disadvantages of Compressor Fridges

Compressor fridges run off a battery. Depending on their size, most will draw between one and two amps, while larger models may do so on more. The main consideration is to continue meeting the battery power with what is drawn. These fridges run on battery power overnight before recharging on the drive the following day, and are a suitable choice as long as they receive the same volume of power they generate.

While compressor fridges can be tilted or positioned at any angle, an absorption-style fridge needs to be level at all times. If a caravan is parked on an incline or slant, the liquids will fail to circulate the fridge effectively.

For long-term camping without power, campers will require a solar panel system to maintain the battery power levels. While this may be seen as a disadvantage, it is usually easily to overcome.

## Securing Fridge Doors

Most caravan fridge with front-opening doors feature a travel lock, while others include a pin that slides into a bracket for securing.

Oh, and Ben – to keep the chilli sauce out of the ice-cream, Kev recommends to lie bottles horizontally...and maybe keep the ice-cream in the freezer (or the chilli sauce in the fridge?)



*A caravan fridge is a smaller version of what is found in a home kitchen, mounted as an element of the caravan's interior cabinetry. Credit: Shutterstock*

## Replacing Fridges in Secondhand Caravans

Those purchasing a second-hand caravan and replacing the fridge may be wondering which model is the most suitable choice.

Compressor fridges are of different dimensions to three-way styles, so the cabinet may need altering. If transitioning from a compressor to a gas fridge, it's wise to consider running a gas line, and adequate ventilation strategies i.e. flue-ing the gas flame.

In reverse, the process is not as detailed. While the gas line will need to be removed, a 12-volt system will need to be installed to support the fridge with batteries. Fitting a gas line will require an approved gas installer, while fixing a 12-volt system can be done independently.

## Insulation Options: DIY vs Professional

When considering a gas fridge, an approved gas installer is required. That said, the mounting process can be attempted independently, though inadequate venting will mean the fridge won't run efficiently.

Heat needs to escape from the sides and top of the fridge cabinet. Earlier van models had fridges simply fitted into their cabinet without sufficient insulation, which had the bench top

heating up due to the ineffective expulsion of heat.

A DIY option involves fitting a fridge into a timber frame sitting flush with the body of the fridge, with insulation padded in and around it. This way, the fridge sits isolated from the rest of the caravan furniture, insulated, and appropriately vented.

## Advantages of Insulation

So, does insulation offset issues related to overheating?

Some people like to pack insulation similar to that found in ceilings down the sides of their fridge, while others fit small 12-volt computer fans in the vicinity. Fans work effectively by creating an up-draft from the base to the top of the fridge, where the cooler air coming from the lower region pushes the hot air to the top.

Another option is to insert holes in the floor underneath the fridge, cover with a fine mesh, and attach a backwards-facing scoop to divert the warm air upwards. The air beneath the van is cooler, so the aim is to draw the cooler air in, push it up through the refrigeration tubes and push warmer air out through the top.

For gas fridge ventilation, the flame is required to be flued outside the vehicle.

## Noise: Compressor vs Absorption Fridges

Like a household fridge, a compressor fridge will activate during the night with a low hum. On the other hand, a three-way fridge will produce no sound at all.

That said – those with a three-way fridge should keep their ear out for a bubbling sound. This indicates a blockage, where the fridge is attempting to force solutions through a tiny hole caused by rusting of the tubes from the inside out by the Ammonia solutions. At this point, it's recommended to have the fridge assessed by a professional.

In terms of maintenance, Kevin suggests running a gas or chest fridge at least every three to six months. His own method involves plugging it into the garage's power, leaving it running for a day, ensuring the elements are warm at the back, and the interior of the fridge is cold. This keeps the motors lubricated and the gases moving. Doing so after a year is likely too long a period between uses.

These issues aren't experienced with compressor fridges, as they operate via different solutions. Their internal mechanism is unlike that of an absorption-style fridge, where the exchange from a liquid to a gas releases energy in the form of heat.

## Considering Your Portable Fridge | A Summary

For those new to caravanning, Kevin confirms that considering a portable fridge depends on its supplementary components – such as a battery and solar panel. His personal recommendation is a compressor fridge, given it runs efficiently in various temperatures and on askew angles, hums only softly at night, and keeps fridge contents consistently cold. That said, some campers may prefer the idea of various fuel choices – like gas – where a gas-powered fridge can run on a single bottle for multiple weeks. For this reason, one may prefer a three-way fridge. Essentially, the choice should depend on what a customer hopes to achieve from their fridge.



The most common brand of portable fridges is Dometic, who own Waeco. While Waeco tend to stock 12-volt fridges and Dometic three-way, they now all fall under Dometic who are renowned for their quality portable fridges. Cheaper brands provide fridges that operate via the same system, though the insulation, general fridge features, and the way in which the cabinet is constructed can each dictate their reliability.

Other brands of portable fridges include Bushman Fridges, Engel, myCOOLMAN, and Evakool, the former two stocking upright models. Regarding compressor fridges, it's best to reconsider a fridge if the name of its compressor is unfamiliar to you. Essentially, Kevin suggests sticking to a well-known brand like Dometic to ensure a greater sense of reassurance behind the fridge's reliability.

Lastly, it's wise to first stock a portable fridge with food already chilled. Not only will the food remain cold for longer, but the fridges won't need to work as hard to expel heat. For example, in the case of chest fridges – the cold air drops to the bottom when the lid is opened, unless drawn outside by a gust of wind. This design mirrors that of fridges found in supermarkets, some without lids.

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Catch you out there!